

in the formation of irritable spots, which eventually went on to ulceration. A week later however, the swelling increased considerably on the face and neck, forming an enlargement of the gland on the right side of the neck. The affected areas gave me much pain and inconvenience, and of course ultimately I was compelled to seek medical aid and treatment for suspected toxic symptoms.

It is of interest to note that this particular blood-sucking *Simulium* from Nuwara Eliya District is so similar both in its bite and superficial appearance to the well known 'Potu' fly (*Simulium indicum*) from the north-west Himalayas that it is very closely allied to this form. A technical description of the female of this species by Dr. Edward Becher was published in the *Journal of the Asiatic Society of Bengal* Vol. liii, Part 2, pp. 199-200 (1884). There is an interesting note on the 'Potu' fly as found in the Himalayas by Mr. E. C. Cotes in the *Indian Museum Notes* Vol. iii, No. 5, pp. 39-41 (1894), which is followed up by yet another important note on the blood-sucking habit of this fly by Mr. Lionel de Niceville in the *Indian Museum Notes* Vol. iv, No. 2, pp. 54-55 (1896). From all that is known of the habits of European and American species of this genus it is supposed that the female lays her eggs in quick flowing hill streams, and the larval and pupal stages are passed in the water. The two specimens captured by me at Horton Plains (altitude 7,000 feet) Nuwara Eliya District in June 1951, are both females with mouth parts developed for blood-sucking. The male is believed to be a harmless insect with rudimentary mouth parts.

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22. MATING BEHAVIOUR OF LEECHES

One April afternoon in the Anamallais I was laying on the ground watching ants at work when my attention was drawn to gentle tapping noises coming from some foliage nearby. I looked up and saw a leech tapping a leaf. There were answering taps some distance away. Shortly afterwards a male leech came into view and landed on the same leaf as the female and both tapped the leaf together and separately. I should say this lasted for a good two minutes. The male then approached to within $\frac{1}{4}$ " to the female and the dance started. They tapped the leaf and the heads curled round one way and then the other way interrupted by both tapping, sometimes once and sometimes twice, always together. This tapping and embracing continued for another two minutes. The male organ then projected and they coupled. Together they moved backward and forward leaning over one way and then the other. I should say this went on for $1\frac{1}{2}$ minutes. After completion, the male went off the way he came and the female in the opposite direction.

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July 25, 1951.

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[By way of comment on the above, Dr. C. Brooke Worth quotes from Craig and Faust, 'Clinical Parasitology', Philadelphia, 1940, the following:

P. 493. 'Leeches are hermaphroditic. Each worm possesses 1 to 10 or more pairs of small, hollow, spherical testes. A small vas efferens, arising from each testis, enters one of the paired vasa deferentia, which continue as paired seminal vesicles, each being usually provided with a prostate gland, an ejaculatory duct and a muscular penis. The two ejaculatory ducts enter a common bursa copulatrix or genital atrium. The ovaries consist of a single pair of coiled, filamentous sacs which are continuous with their ducts. The two ducts unite to form a common convoluted oviduct, which is continued as a muscular uterus and opens through a short vaginal tube in a mid-ventral line, one metamere behind the male genital opening (usually stated to open on somite 9).'

P. 494. 'In some leeches insemination is accomplished when one leech implants onto the cuticula of another a horny pocket or spermatophore, from which spermatozoa issue forth, migrate through the tissues of the recipient and reach its ovary. In the group to which the medicinal leech (*Hirudo medicinalis*) belongs, reciprocal copulation takes place by the introduction of the penis of each into the vagina of the other and the reciprocal deposition of a spermatophore. Thus, in either type, fertilization takes place before the eggs are laid.'

He agrees that Mr. Leslie's observation is of interest, for the witnessing of mating behaviour of leeches must be a rare, if not unique, occurrence. One is tempted to guess that the leeches' antics served as recognition signals to bring them together for copulation.—Eds.]

23. DESCRIPTION AND DISCUSSION OF THE BITING OF AN INDIAN LAND LEECH (ANNELIDA; HIRUDINEA)

In the literature at hand embracing medical parasitology there is no detailed description of a land leech's biting. Hence it may be of interest to record experience arising out of curiosity about this matter.

Craig and Faust (1) give information that indicates *Haemadipsa zeylanica* as the common land leech of Southern India. Leeches corresponding in size (about 1 inch long) and somewhat in behaviour to this species are common on coffee and cardamom plantations in the western part of Mysore State, especially in the monsoon period during the summer months. The present observations were made near Sakleshpur, Hassan District, in the Western Ghats during June-August, 1951.

A word should be said first about the method by which these leeches reach a host. In Craig and Faust and in Manson-Bahr (2) is found the statement that terrestrial leeches 'actively spring' upon their victims, while Strong (3) recounts the opinion that *H. zeylanica* may at times 'drop' onto hosts from overhanging vegetation. While neither of these methods of attack has been observed in Mysore, the second can be imagined as possible, but the first cannot be classified as otherwise than fantastic. Leeches have light receptors but no visual organs,